

REMARKS

By this Amendment, the claims have been rewritten to reduce the multiple dependencies and to place the claims in better conformance with US practice.

Further and favorable action is respectfully solicited.

Respectfully submitted,

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ATTACHMENT A
Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) Shear controlling apparatus for an extruder or pumping device (1), said extruder (1) comprising a conveying means (2, 3, 4), a die plate and a variable restriction positioned between the conveying means (2, 3, 4) and the die plate, said variable restriction comprising an annular insert (Figure 5) and a co-axially mounted piston (Figures 3, 7) movable relative to one another in the axial direction for changing the flow resistance, characterisedcharacterized by the relative positions of the annular insert (Figure 5) and the co-axially positioned piston (Figures 3, 7) being controlled by means of a piston cylinder unit.
2. (Currently Amended) Apparatus in accordance with claim 1, characterisedcharacterized by said annular insert (Figure 5) comprising a circular opening and said piston (Figures 3, 7) having a circular cross-section.
3. (Currently Amended) Apparatus in accordance with claim 2, characterisedcharacterized by said annular insert (Figure 5) and/or said piston (Figures 3, 7) having a frusto-conical formation directed towards one another.
4. (Currently Amended) Apparatus in accordance with any of the preceding (Figures 4, 6) claims 1-3 claim 1, characterisedcharacterized by the piston (Figures 3, 7) being mounted in a die base insert (Figures 4, 6) positioned downstream of the conveying means (2, 3, 4) and the piston-cylinder unit being incorporated in the die base insert (Figures 4, 6).

5. (Currently Amended) Apparatus in accordance with claim 4, ~~characterised~~characterized by the die base insert (Figures 4, 6) comprising radially extending vanes providing a resistance against rotational movement of the extruded material passing by this insert.

6. (Currently Amended) Apparatus in accordance with claim 5, ~~characterised~~characterized by the hydraulic connection to the piston-cylinder unit being provided through the radial vanes of the die base insert (Figures 4, 6).

7. (Currently Amended) Apparatus in accordance with ~~any of the preceding claims~~ claim 1, ~~characterised~~characterized by the die plate comprising axially extending die openings.

8. (Currently Amended) Apparatus in accordance with ~~any of the preceding claims 1-6~~ claim 1, ~~characterised~~characterized by the die plate comprising radially extending die openings.

9. (Currently Amended) Apparatus in accordance with ~~any of the preceding claims~~ claim 1, ~~characterised~~characterized by the conveying means (2, 3, 4) being provided in the form of a screw conveyor (3, 4).

10. (Currently Amended) Apparatus in accordance with claim 9, ~~characterised~~characterized by the screw conveyor (3, 4) being provided in the form of a multiple screw conveyor.

11. (Currently Amended) Method of operating an apparatus in accordance with ~~any of the preceding claims~~ claim 1, ~~characterised~~characterized by comprising
a) measuring the power delivered to the conveying means (2, 3, 4), and
b) controlling the variable restriction to achieving a predetermined power delivery to the conveying means (2, 3, 4).

12. (Currently Amended) Method in accordance with claim 11, ~~characterised~~characterized by further comprising

- c) measuring the pressure inside the extruder/pumping device (2, 3, 4), and
- d) using said measurement of the pressure as a parameter for the control of the variable restriction.

13. (Currently Amended) Method of operating an apparatus in accordance with claim 11 or 12, ~~characterised~~characterized by further comprising measuring the flow of material and controlling the variable restriction to achieve a constant relation between the power delivery to the conveying means and the flow rate of the material.

14. (Currently Amended) Method of operating an apparatus in accordance with claim 11, ~~characterised~~characterized by further comprising measuring the meal viscosity of the material and controlling the variable restriction to achieve a constant relation between the power delivery to the conveying means and the meal viscosity of the material.